

Contra Costa County Health Services Department
Emergency Medical Services Agency

1993 Annual Program Report

- June 1994 -

Table of Contents

I. Introduction.....	1
A. Overview of EMS.....	1
B. Local EMS Agency Functions	1
C. Emergency Medical Care Committee.....	2
D. Delivery of EMS Services	3
E. County Service Area EM-1 (Measure H) Funding	4
F. Development of EMS in Contra Costa County.....	4
II. List of Major Accomplishments - 1993.....	9
III. EMS System Participants	10
A. Advisory Committees	10
B. PSAP's and Dispatch Centers.....	11
C. First Responders.....	12
D. Emergency Ambulance Providers	13
E. EMS Helicopters	13
F. Hospitals.....	13
IV. EMS Program Activities	14
A. Emergency Ambulance Services.....	14
B. Base Hospital and Paramedic Service Programs	16
C. First Responder Services.....	16
D. Dispatch & Communications.....	17
E. Trauma System	18
F. Helicopter Transport.....	19
G. Hospital Emergency Services	19
H. Disaster/Multicasualty Planning	20
I. Certification Programs	21
J. Training Programs	22
K. Public Information Education Programs	23
L. Other Programs.....	23
V. Statistical Reports.....	25
A. Ambulance Dispatch Reports	27
B. Helicopter Utilization Report.....	33
C. Trauma System Report.....	37
D. Early Defibrillation Program Reports.....	41
E. Patient Transfer Report	45
F. Emergency Department Diversion Report	49
G. Base Hospital Contact Report	53
VI. EMS Agency Organizational Chart.....	57
VII. Glossary of EMS Terms.....	61
VIII. List of Documents Available From the EMS Agency.....	65

I. IntroductionI. Introduction

A. Overview of EMSA. Overview of EMS

Emergency Medical Services includes that system of services organized to provide rapid response to serious medical emergencies, including immediate medical care and patient transport to definitive care in an appropriate hospital setting. An effective EMS system involves a variety of agencies and organizations working together to accomplish the goal of providing rapid emergency medical response and treatment. EMS includes ambulance services, fire services, law enforcement agencies, public safety dispatch centers, hospitals and specialty care centers, training institutions and organizations, citizen and medical advisory groups, local and state EMS agencies, and other governmental and voluntary organizations. While most EMS responses are day-to-day emergencies, EMS agencies also plan and prepare for disaster medical response.

In California, EMS systems are organized on a county or regional basis. Local EMS Agencies designated by county boards of supervisors are responsible for local EMS planning and coordination consistent with State law and regulations. Local EMS agencies are the lead agencies coordinating EMS services at the county or regional level. The State Health Services Emergency Medical Services Authority (EMSA) is the lead EMS agency. The State EMSA approves local EMS system plans, provides guidance to local EMS agencies, develops EMS regulations, administers the Regional Poison Control Center program, and carries out other EMS activities. The State EMS Commission, with members appointed by the Governor and certain other State officials, is advisory to the EMSA and reviews and approves all EMS regulations.

In Contra Costa County, the Board of Supervisors has designated the County Health Services Department as the Local EMS Agency. The EMS functions of the Health Services Department are carried out by the EMS Director and staff. The County Health Officer is designated as the EMS Medical Director with statutory responsibilities to oversee medical aspects of the EMS program. An Emergency Medical Care Committee (EMCC) appointed by the Board of Supervisors meets regularly to provide advice regarding EMS matters to the Board and to the EMS Agency.

B. Local EMS Agency FunctionsB. Local EMS Agency Functions

The principal functions of a local EMS agency are specified in the Health & Safety Code. These include:

- Planning, implementing, and evaluating emergency medical services.
- Monitoring and approving EMT-I, paramedic, and Mobile Intensive Care Nurse (MICN) training programs.
- Conducting certification/accreditation/authorization programs for EMT-I's, paramedics and MICNs.
- Authorizing advanced life support (ALS) programs.

- Establishing policies and procedures for medical control of the EMS system, including dispatch, patient destination, patient care, and quality assurance.
- Establishing ordinances and/or exclusive operating areas for the regulation of ambulance services.
- Developing and implementing a trauma system plan.

The County Board of Supervisors has further charged the Health Services Department as the local EMS Agency with the following responsibilities:

- Monitoring interfacility patient transfers.
- Implementing EMS program enhancements funded under County Service Area EM-1 (Measure H).

Additionally, the EMS Agency is the lead agency responsible for:

- Planning and coordinating disaster medical response.

To accomplish these functions, the EMS Agency employs a full time staff of 9 persons, including the EMS director, program coordinator, two prehospital care coordinators, trauma coordinator, training coordinator, administrative aide, and two clerks.

C. Emergency Medical Care CommitteeC. Emergency Medical Care Committee

Each county may, under the Health & Safety Code, establish an Emergency Medical Care Committee (EMCC) with membership prescribed and appointed by the county board of supervisors. The EMCC acts as an advisory body to its board of supervisors and local EMS agency on all matters relating to EMS.

The Contra Costa EMCC consists of 20 members. Each of the Contra Costa County Board of Supervisors selects one consumer representative. Additionally, the Board appoints members nominated by the following organizations:

- American Heart Association
- American Red Cross
- California Highway Patrol
- Contra Costa Ambulance Providers
- Emergency Department Physicians
- Emergency Nurses Association
- Fire Chiefs' Association
- Health Services Department
- Hospital Council of Northern & Central California, East Bay Conference
- Los Medanos College or Contra Costa College

Office of Emergency Services
Police Chiefs' Association
Public Managers' Association
Sheriff-Coroner Communication Division
Alameda-Contra Costa Medical Association

The EMCC meets on the second Wednesdays of January, February, April, May, July, August, October, and November, 4:00 to 5:30 p.m., in the County Emergency Operating Center located at 50 Glacier Drive, Martinez. All meetings of the EMCC and its subcommittees are open to the public.

During 1993, the EMCC held seven committee meetings (January meeting was canceled). Meetings were also held by various standing and ad hoc subcommittees. The EMCC actions and activities included the following:

- Initiation of a new EMS system plan development process.
- Recommendations for distribution of the Prehospital Recognition Fund including a donation to the Los Medanos Community College Prehospital Emergency Care Association.
- Recommendation that a paramedic be added to the EMCC.

Two consumer members of the EMCC also served on a special evaluation committee to review the performance of the County's emergency ambulance contractors.

D. Delivery of EMS ServicesD. Delivery of EMS Services

EMS services are typically provided in response to a medical emergency reported through the 9-1-1 emergency telephone system. A 9-1-1 call placed from any telephone is automatically routed to the appropriate designated Public Safety Answering Point (PSAP). A dispatcher or complaint operator at the PSAP determines the nature of the emergency and, if the PSAP is part of a fire/medical dispatch center, obtains information necessary to dispatch the appropriate response units. If the PSAP is not part of a fire/medical dispatch center, the call may be transferred to a "secondary PSAP" where a dispatcher then obtains necessary information to dispatch fire and medical units.

The initial response to a potentially life threatening incident includes both a fire unit and a paramedic-staffed ambulance. The location of fire stations throughout the county enables firefighters to make a rapid initial response to a medical emergency. Firefighters are trained and equipped to provide rescue, first aid, and cardiac defibrillation.

Emergency ambulance services in most parts of the County are provided by a private company, American Medical Response (formerly Regional Ambulance) under contract with the County. In the San Ramon Valley and Moraga areas, emergency ambulance service is provided by the fire service. Depending upon the nature of the incident, an ambulance may be dispatched Code 3 (red lights and siren) or Code 2 (immediate response, but following normal traffic regulations).

Ambulances may be staffed with either paramedic-trained or EMT-I-trained personnel. Advanced life support (ALS) ambulance units are staffed with two paramedics and are always dispatched to potentially life threatening incidents. Paramedics work under direction of base hospital medical personnel and are able to administer lifesaving drugs and perform other invasive lifesaving procedures. Basic life support (BLS) ambulance units are staffed by two EMT-I's and may be used for non-emergency response or to provide additional support at an emergency incident. In some areas, firefighter first responders may respond to medical emergencies in an ambulance vehicle rather than an engine. This provides backup transport capability to the paramedic ambulance in the event there are multiple victims or a delay in the paramedic ambulance response.

Patient treatment and transport are carried out under State and local EMS agency policies and procedures. These policies may include, in the case of paramedics, making contact with a mobile intensive care nurse (MICN) or physician at a designated base hospital to obtain direction in management of the patient. Patients are transported to an appropriate hospital. Hospital destination is based upon County EMS protocols and patient preference. Critical patients may be directed to the nearest emergency department or to the trauma center. Noncritical patients may be transported to hospitals of choice within reasonable travel time.

Medical helicopter service is available to transport critical patients when ground ambulance transport time would be excessive. CALSTAR, one of five medical helicopter services authorized to respond to EMS calls in Contra Costa, maintains a 24-hour helicopter unit staffed by specially trained flight nurses based at Buchanan Field in Concord. Other helicopter services are available to respond from neighboring counties if CALSTAR is unavailable.

E. County Service Area EM-1 (Measure H) FundingE. County Service Area EM-1 (Measure H) Funding

In 1988, the voters of Contra Costa County passed countywide Measure H providing for enhancements to the EMS system including increased paramedic ambulance service, additional medical training and equipment for firefighter first responders, and an improved EMS communications system. Following a 71.6% affirmative vote, the Board of Supervisors, with the support of the 18 city councils, formed County Service Area EM-1 to levy charges on real property as specified in Measure H. Assessments are limited to \$10.00 annually for a single family residence. Commercial and industrial properties are generally assessed at \$30.00 or higher, depending upon the use code classification of the parcel. Measure H assessments have been used to add six staffed paramedic ambulance units to respond to 9-1-1 calls; to establish a firefighter first responder defibrillation program and to purchase automatic defibrillators for all fire response units; to purchase medical supply caches for use in multicaseualty and disaster response; to upgrade the MEDARS radio system used for ambulance-to-hospital communications; to provide ambulances with radios for communication with fire first responders, and to upgrade the ambulance dispatch system and dispatcher preparedness.

F. Development of EMS in Contra Costa County

The emergency medical services system approach and the use of paramedic personnel to provide advanced life support care under the supervision of a base hospital physician or mobile intensive care nurse began evolving as a new model for health care delivery in the late 1960's. Contra Costa as well as a number of other progressive counties throughout California began developing their emergency medical services systems during this time. Following are milestones in the development of the EMS system in Contra Costa County:

- 1968** ➤ **Emergency Medical Care Committee (EMCC)** appointed by the Contra Costa County Board of Supervisors to provide oversight of emergency medical services within the county. This committee laid the foundation for the EMS system as it exists today.

- 1970** ➤ State **Wedworth-Townsend Act** passed enabling counties to conduct pilot projects using **paramedics** and **mobile intensive care nurses (MICNs)** to provide **advanced life support services** to patients in the field setting.
 - **Ambulance Regulations** added to the County Ordinance Code which included permit and ambulance registration processes.

- 1972** ➤ Ten **ambulance zones** established for the provision of emergency ambulance service in Contra Costa County.

- 1975** ➤ EMCC recommended that the County develop an **advanced life support program** and identify an agency to **coordinate emergency medical services** throughout the county. The County Health Department established the **EMS Program** with Federal funding under the auspices of Comprehensive Health Planning.

- 1976** ➤ Los Medanos Community College in conjunction with Stanford University developed **training programs for paramedics and MICNs**.

- 1977** ➤ **First paramedics and MICNs graduated** from Los Medanos Community College training programs and certified by the County Health Officer.
 - **Joint Exercise of Powers Agreement** between Alameda and Contra Costa Counties established the East Bay EMS Region as means for the development of a Regional EMS program.

- 1978** ➤ First **paramedic-staffed ambulances** put into service in Moraga by Moraga Fire Protection District, in Concord by Michael's Ambulance and in Walnut Creek by Pomeroy Ambulance.
 - John Muir Medical Center and Mt. Diablo Medical Center designated **Base Hospitals** for medical control of paramedic units throughout the county. (Initial base

hospital services were provided on a monthly rotation schedule.)

- 1980**
- Joint Powers Agreement for Regional EMS disbanded at the request of the EMCCs of both Alameda and Contra Costa Counties.
 - Comprehensive **California Emergency Medical Services System and the Prehospital Emergency Medical Care Personnel Act** passed. This legislation set EMS system standards as well as prehospital personnel training and certification standards and provided a basic standardized structure for EMS systems throughout the state.
 - Provision establishing **exclusive ambulance zones** for emergency and non-emergency transport added to the County Ambulance Ordinance.
 - Brookside Hospital designated by County as a third base hospital brought medical direction closer for west county paramedic units.
- 1982**
- The Board of Supervisors approved the County **Multicasualty Incident Plan** providing for on-scene coordination, resource notification, and patient distribution in multicasualty situations.
- 1983**
- Health Services Department designated by the Board of Supervisors as **Local EMS Agency** pursuant to State EMS Act. County Health Officer designated **EMS Medical Director**.
 - **Revised Ambulance Ordinance** established competitive bidding process for emergency ambulance service. **Request for Proposal (RFP)** results in selection of five providers based upon highest level of service without County subsidy: Cadillac Ambulance, Regional Ambulance, Moraga Fire District, San Ramon Valley Fire District, and East County Ambulance.
- 1984**
- **San Ramon Valley Fire District** established paramedic level ambulance service through joint undertaking with John Muir Medical Center.
 - Ten ambulance zones consolidated into **5 Emergency Response Areas (ERAs)**. Exclusive ambulance service contracts were awarded to 4 providers: Cadillac Ambulance, Regional Ambulance, Moraga Fire and San Ramon Valley Fire.
- 1985**
- **EMS System Plan** developed according to standards set by the State EMS Authority.
 - First formal **RFP process for paramedic base hospital designation** developed and administered for 4 base hospital zones countywide.
 - **Emergency Medical Dispatch (EMD) standards and criteria** developed by an Ad Hoc subcommittee of the EMCC.

- Procedure for **Emergency Department (ED) diversion** developed and implemented to permit diversion of emergency ambulances away from an ED if the number of critical patients in the ED was such that more critical patients arriving in the department could not be cared for adequately.
- Brookside Hospital dropped as base hospital as a result of downgrading of emergency department from "Basic Emergency Services" licensure to "Standby Emergency Services" licensure.
- 1986**
 - Comprehensive **Trauma System Plan** providing for the designation of a single Level II Trauma Center approved by Board of Supervisors. RFP issued for trauma center designation. Trauma system **treatment and triage protocols** adopted. Ambulance personnel and first responders received **specialized training** in critical trauma patient management.
 - John Muir Medical Center designated as **Level II Trauma Center** for the County pursuant to the Trauma System Plan.
 - The **Bay Area Trauma Registry Project** funded by the State undertaken to develop a trauma data registry.
 - **Operational Procedures for Patient Transport by Helicopter** implemented.
 - Cadillac Ambulance purchased by Regional Medical Systems making RMS the single private emergency ambulance provider in the county.
 - **RFP process for emergency ambulance service** in 5 ERAs. Ambulance service contracts awarded to 3 providers: Regional Ambulance, Moraga Fire and San Ramon Valley Fire.
 - **Base Hospital** contracts established with John Muir Medical Center (2 zones), Mt. Diablo Medical Center and Los Medanos Community Hospital.
 - **Emergency medical dispatch program** including pre-arrival instructions implemented by Contra Costa County Fire Dispatch Center.
- 1987**
 - Formal **Patient Transfer Guidelines** adopted by Board of Supervisors. Guidelines included development of multi-disciplinary quality assurance review process administered by EMS Agency.
 - Health Services Department **Emergency Management Team** consisting of key Health Services personnel designated to respond to the County EOC or Medical/Health Operations Center in a disaster.
 - Program for the reporting of **communicable disease exposure** developed and made available to fire, police and ambulance agencies countywide.

- Basic Emergency status re-established for Brookside Hospital emergency department.
- 1988**
 - "**Measure H**", a general election ballot advisory measure calling for the establishment of a benefit assessment for enhanced EMS services, approved by 71.6% of the voters countywide.
 - Joint **Solano/Contra Costa County EMS Hazardous Materials Training Project** established with five year funding under a consent agreement between IT Corporation and State Department of Health Services. Joint project administered by Contra Costa EMS Agency.
 - Pilot "**first responder paramedic engine**" program undertaken by Moraga Fire Protection District.
- 1989**
 - Countywide **Benefit Assessment District for Enhanced Emergency Medical Services, County Service Area EM-1**, approved by all city councils and established by the County Board of Supervisors under administration of County Health Services.
- 1990**
 - **County Service Area EM-1** became operational.
 - **EMS Disaster Planning Project** initially funded by the State administered by the EMS Agency. The County Health Officer is the designated Regional Disaster Medical Health Coordinator for OES Region 2.
 - San Ramon Regional Medical Center licensed for Basic Emergency Services opened in San Ramon.
- 1991**
 - **High-performance ambulance contracts** initiated with Regional Ambulance, San Ramon Valley Fire, and Moraga Fire. Standards required paramedic-staffed ambulance response to emergency calls at 95% 10 minute maximum response for urban areas of the county. The number of paramedic ambulances increased from 12 to 19 paramedic units with ambulance service subsidies funded by Measure H.
 - **First Responder Defibrillation Program** developed and implemented including an RFP competitive bid process for semi-automatic defibrillator selection.
 - Countywide system of **Multicasualty Medical Caches** established containing supplies to be used in multicasualty or disaster situations.
 - Specialized **Hazardous Materials Response Protocols and training program** developed and implemented for ambulance personnel.
 - The first **paramedic training program** to be provided in the County on an on-

going basis began at Los Medanos Community College.

- First issue of the **EMS Newsletter** produced and distributed to provide EMS system participants with information regarding new policies/procedures, continuing education activities and other EMS related activities.
- 1992** ➤ **Fire First Responder Defibrillation Program** implemented countywide.
- "**Emergency Medical Guidelines for Law Enforcement Agencies**" endorsed by the EMCC and the County Police Chiefs' Association.
- "**Operational Procedures For Response to an Expanded Medical Emergency**" developed and implemented.
- "**Do Not Resuscitate**" program implemented.
- **EMS treatment protocols for children** developed and implemented.
- **Two new radio channels** for ambulance to hospital communications obtained.
- John Muir Trauma Center permanently (20 years) designated as **Level II trauma center** following request-for-proposal review process.
- **Proposed In Fire Service EMS Model Assessment** report completed and distributed.
- New **Base Hospital contracts** negotiated with Mt. Diablo Hospital, John Muir Medical Center, and Los Medanos Hospital.
- Initiation of **fire/medical dispatch linkage** project.
- **First responder paramedic program** implemented in rural Byron/Discovery Bay area as a cooperative effort among East Diablo Fire, American Medical Response (formerly Regional Medical Systems), and the County.
- 1993** ➤ Mt. Diablo Medical Center assumed **medical control** for east County ambulances as Los Medanos Community Hospital terminated base hospital status.
- A release at General Chemical Company, Richmond, triggered a large scale response by fire, police and EMS. Thousands of patients requested evaluation from local medical facilities over the following weeks.
- Emergency State legislation moved responsibility for **paramedic certification** from individual counties/regions to State EMSA. Permanent regulations regarding the certification process are due in 1994.

- **Functional integration** of 5 County fire districts (Contra Costa County Fire Protection District, Riverview Fire Protection District, Orinda Fire Protection District, Moraga Fire Protection District and West County Fire Protection District).

II. List of Major Accomplishments - 1993

- Initial implementation of system for **inter-linking the computer dispatch systems** of the fire/medical dispatch centers, Sheriff's dispatch, and the ambulance dispatch center operated by the County's private ambulance vendor, American Medical Response.
- County "**Do Not Resuscitate**" program expanded to recognize State Guidelines.
- **Continuous Quality Improvement "Quality Action Team"** formed to improve prehospital incident review process.
- **Medical dispatch programs** evaluated and arrangements made for San Ramon Valley Fire Protection District to pilot Medical Priorities' computerized ProQA medical dispatch program.
- **16 channel mobile radios**, programmed with existing fire service radio channels, installed in all paramedic units, to facilitate communication among paramedics, fire dispatch centers, and fire first responders.
- Local **Paramedic scope of practice** expanded to include new medications.
- **387 EMT-I's certified, 121 paramedics accredited and 58 MICN's authorized.**
- Protocols for the **accreditation of paramedics** under new State legislation developed and implemented.
- Funding for **Highway Injury Record Linkage Software (HIRLS) and Firearm Injury Reporting, Surveillance and Tracking (FIRST) System** obtained by EMS Agency through a State EMS Grant. Programs being administered by Health Services Injury Prevention Program.
- EMS staff participated in State **EMS Quality Improvement Project.**
- **Hospital Evacuation Planning Guidelines** developed through a disaster planning grant obtained from the State.
- Development of **Hospital Evacuation Planning Guidelines.**

III. EMS System Participants

A. Advisory Committees

Emergency Medical Care Committee (EMCC): The Health and Safety Code provides that each county may establish an Emergency Medical Care Committee (EMCC) with membership prescribed and appointed by the county's board of supervisors. The EMCC acts as an advisory body to its board of supervisors and local EMS agency on all matters relating to EMS. The Contra Costa EMCC is a 20 member multidisciplinary committee appointed by the Board of Supervisors. Membership is largely made up of representatives of EMS related organizations, although each Board member selects one consumer representative as well. The EMCC meeting schedule consists of eight meetings each year.

EMCC Public Information & Education Subcommittee (PIE): This subcommittee of the EMCC provides public education and information concerning emergency medical services to the community. PIE membership includes representatives of the EMCC, fire agencies, ambulance services, and the EMS Agency. Participation from all interested individuals is encouraged. Meetings are held on a quarterly basis or more frequently if needed.

Medical Advisory Committee (MAC): This committee was established in 1977 to provide advice and recommendations to the EMS Agency and EMS Medical Director on medically related topics. Such topics include medical treatment guidelines for both ALS and BLS services; new prehospital skills and/or medications for the ALS program; prehospital policies and procedures related to the medical management of patients; and, review of medical quality assessment/improvement issues. MAC membership consists of base hospital coordinators, liaison physicians, paramedic representatives from each of the ALS provider agencies, and physicians from receiving hospital emergency departments. Major MAC topics addressed in 1993 included revision of ALS protocols and of Do Not Resuscitate Protocol.

Measure H Oversight Committee: This committee was appointed by the Health Services Director to assist in ongoing program planning and monitoring and to advise the Department on preparation of the annual budget for the County Service Area for EMS. The Oversight Committee includes representatives of the Public Managers' Association, Fire Chiefs' Association, Police Chiefs' Association, East Bay Hospital Conference and two consumer members of the EMCC. Meetings are held on a bimonthly basis.

Pre Trauma Audit/Trauma Audit Committees (PreTAC and TAC): These confidential quality assurance (QA) committees were established to review the care provided severely injured trauma patients in the County trauma system including the John Muir Trauma Center. Members of both committees are appointed by the EMS Medical Director. Both PreTAC and TAC are held jointly with Alameda County and provides monitoring for two separate trauma systems. **Pre TAC**, which meets monthly, reviews all trauma related systems issues, trauma center cases selected by predefined QA trauma data screens, and system issues identified by other trauma system participants. Membership consists of representatives from receiving and base hospitals, the trauma center, a trauma surgeon on rotation from Alameda County and EMS staff.

Trauma center cases requiring further evaluation may be referred to **TAC** for evaluation and recommendations. TAC meets bimonthly and is composed of representatives of the four Alameda/Contra Costa County trauma centers, non-trauma center receiving hospitals, base hospitals, coroner's offices, Alameda/Contra Costa Medical Association, and EMS agencies.

Transfer Review Committee: This confidential multidisciplinary committee was established as part of the County Patient Transfer Guidelines to review patient transfers between acute care hospitals. Committee members appointed by the EMS Medical Director include representatives of major medical specialties, East Bay Hospital Conference, Alameda-Contra Costa Medical Association, Emergency Department Nurses Association, and Emergency Medical Care Committee. The panel meets quarterly to review and recommend action on specific patient transfer investigations.

Multicasualty Advisory Committee (MCAC): This multidisciplinary committee consists of representatives of police, fire, EMS and ambulance providers was originally appointed by the EMS Agency in 1978 to develop an integrated response plan to multicasualty incidents. MCAC has continued to meet on an as-needed basis to review multicasualty response incidents and to provide periodic updates to the Multicasualty Incident Plan.

Helicopter Operations Committee: This committee was established to provide a forum for exchange of helicopter related information. The committee meets quarterly and consists of representatives from fire, police, hospitals, ambulance and helicopter providers. Typical topics include provider agency updates, review of procedures, operational issues, policies and procedures, equipment and training issues and other items of interest.

First Responder Defibrillation Operations Committee: This committee consists of training representatives of each of the fire first-responder agencies and is charged with reviewing operational matters related to the first responder defibrillation program.

Hospital Disaster Planning Forum: This forum was organized in 1990, as part of the Disaster Planning Project funded by a grant from the State EMS Authority to provide an opportunity for interested individuals to discuss issues of mutual concern regarding hospital disaster preparedness. The membership of the forum consists of hospital disaster planners, city disaster planning personnel and the EMS Agency. This group meets quarterly.

Bay Area Medical Mutual Aid (BAMMA): This committee consists of representatives of the Bay area EMS Agencies who meet regularly to participate in disaster planning. Major achievements of BAMMA in 1993 include development of Hospital Evacuation Planning Guidelines and the review/approval of Casualty Collection Point Guidelines. This group meets on a bimonthly basis.

B. PSAP's and Dispatch CentersB. PSAP's and Dispatch Centers

Public Safety Answering Points:

- Antioch Police Department

- California Highway Patrol
- Concord Police Department
- East Bay Regional Park Police
- Martinez Police Department
- Pinole Police Department
- Pleasant Hill Police Department
- Richmond Police Department
- San Pablo Police Department
- Sheriff's Communications
- Walnut Creek Police Department

Fire/Medical Dispatch Centers:

- Contra Costa County Fire Dispatch
- Richmond Police Dispatch
- San Ramon Valley Fire Dispatch
- Sheriff's Dispatch
- West Bay Dispatch (Pinole Police)

Ambulance Dispatch Centers:

- American Medical Response (formerly Regional Medical Systems)
- San Ramon Valley Fire
- Contra Costa County Fire (Moraga only)

C. First RespondersC. First Responders

County Fire Protection Districts:

- Bethel Island Fire Protection District (3 units)
- Contra Costa County Fire Protection District (26 units)
- Crockett-Carquinez Fire Protection District (3 units)
- East Diablo Fire Protection District (11 units)
- Moraga Fire Protection District (2 units)
- Oakley Fire Protection District (6 units)
- Orinda Fire Protection District (3 units)
- Pinole Fire Protection District (Covered by Pinole Fire Department)
- Riverview Fire Protection District (9 units)
- West County Fire Protection District (2 units)

Municipal Fire Departments:

- El Cerrito Fire Department (2 units)
- Pinole Fire Department (2 units)
- Richmond Fire Department (12 units)

Independent Fire Protection Districts:

- San Ramon Valley Fire Protection District (22 units)
- Kensington Fire Protection District (2 units)
- Rodeo-Hercules Fire Protection District (3 units)

Other First Responders:

- Dougherty Regional Fire Authority (5 units)
- East Bay Regional Parks
- Private & military fire services

Special Paramedic First Responder Programs:

- Moraga Fire - Paramedic Engine
- American Medical Response (Regional) - Byron/Discovery Bay area
- California Highway Patrol - Helicopter Unit

D. Emergency Ambulance ProvidersD. Emergency Ambulance Providers

- American Medical Response
- San Ramon Valley Fire
- Moraga Fire

E. EMS HelicoptersE. EMS Helicopters

Air Ambulances:

- CALSTAR based 24 hours per day at Buchanan Airport with a second helicopter based in Gilroy
- Stanford Life Flight based in Palo Alto
- Davis Life Flight based in Sacramento
- REACH helicopter based in Santa Rosa with a second ship in Vacaville
- Medi-Flight, 2 helicopters based in Modesto

Rescue Aircraft:

- California Highway Patrol (ALS helicopter)
- East Bay Regional Parks (BLS helicopter)
- U.S. Coast Guard (BLS rescue capabilities, including hoist capability)

F. HospitalsF. Hospitals

Base Hospitals:

- John Muir Medical Center

- Mt. Diablo Hospital Medical Center

Trauma Center:

- John Muir Medical Center

Burn Center:

- Brookside Hospital

Receiving Hospitals:

- Brookside Hospital
- Delta Memorial Hospital
- Doctor's Hospital of Pinole
- John Muir Medical Center
- Kaiser Medical Center, Martinez
- Kaiser Medical Center, Richmond
- Kaiser Medical Center, Walnut Creek
- Los Medanos Community Hospital (closed in 1994)
- Merrithew Memorial Hospital
- Mt. Diablo Hospital Medical Center
- San Ramon Regional Medical Center

IV. EMS Program Activities

A. Emergency Ambulance Services

Emergency ambulance services are provided countywide under performance based contracts with the County in each of five exclusive operating areas (**Emergency Response Areas**) designated by the Board of Supervisors. Contracts are awarded on a competitive basis, as required by law, in all areas except ERA 3 which is served by Moraga Fire, which is exempt from competitive bidding under a provision of the Health & Safety Code. ERA's 1, 2, and 5 are served by American Medical Response (formerly Regional Medical Systems). ERA 4 is served by San Ramon Valley Fire. All five ERA's are covered by performance based contracts which require ALS level response to all life threatening or potentially life threatening emergencies, and a 10 minute or shorter response time for at least 95 percent of all Code 3 calls within urban areas.

ERA 1	All of west county and central county west of I-680 including cities of Richmond, San Pablo, El Cerrito, Hercules, Pinole, Martinez, Pleasant Hill, Lafayette, Orinda, and a portion of Walnut Creek	American Medical Response 7 ALS units 3+ BLS units
ERA 2	Central county east of I-680 including cities of Concord, Clayton, and a portion of Walnut Creek	American Medical Response 5 ALS units 2+ BLS units
ERA 3	Area of Moraga Fire Protection District including city of Moraga	Moraga Fire 1 ALS unit
ERA 4	Area of San Ramon Valley including cities of Danville and San Ramon	San Ramon Valley Fire/John Muir Medical Center 2 ALS units 6 BLS units
ERA 5	All of east county including cities of Pittsburg, Antioch, and Brentwood	American Medical Response 4 ALS units 1 BLS unit

January 1992 marked the beginning of the first year for which the Measure H funded enhancements to the County ambulance system were fully implemented. Under Measure H, six additional paramedic ambulance units were added by American Medical Response, bringing their total number of available paramedic ambulances to 16 units. With San Ramon Valley and Moraga Fire, the total number of in-service paramedic ambulance units available in the county was brought up to 19. BLS ambulance units remain available to respond to non-life threatening calls and to provide backup during multicasualty incidents or during rare occasions when all ALS units are on calls.

During 1993, the EMS system received 43,774 requests for emergency ambulance response. Of these, 36,484 (83.3%) were considered to involve potentially life threatening situations to which a Code 3 (red lights and siren) ambulance response was necessary. The remaining 7,290 (16.7%) ambulance responses were dispatched Code 2 (immediate response without lights and siren). Of the total responses, 40,650 (92.9%) were handled by American Medical Response, 2,561 (5.9%) by San Ramon Valley Fire Protection District ambulance, and 563 (1.3%) by Moraga Fire Protection

District ambulance. Average Code 3 ambulance response time countywide was 6.85 minutes. The county ambulance staffing standard was met on all but 162 (0.4%) of the 36,484 Code 3 ambulance responses.

Not all ambulance responses result in patient transport. Of the 43,774 emergency ambulance responses during the year, 30,886 (70.6%) resulted in patient transport to an emergency receiving hospital. Ambulances responding to the remaining 12,888 (29.4%) requests were canceled either enroute or at the scene without the need for patient transport. Reasons for cancellation vary from poor information regarding patient severity, to the patient having been transported by other means such as private auto, to the patient refusing ambulance transport. In many instances, a situation which was perceived to be a medical emergency had been resolved or stabilized by the time an ambulance unit arrived on the scene.

Emergency Ambulance Responses

	1991		1992		1993	
All EMS Ambulance Responses	39,496	100.0%	40,780	100.0%	43,774	100.0%
Code 3 (lights & siren)	33,110	83.8%	33,997	83.4%	36,484	83.3%
Code 2	6,386	16.2%	6,783	16.9%	7,290	16.7%
American Medical Response	36,691	92.9%	37,737	92.5%	40,650	92.9%
San Ramon Fire	2,330	5.9%	2,491	6.1%	2,561	5.9%
Moraga Fire	475	1.2%	552	1.4%	563	1.3%
Transport	29,057	73.6%	29,774	73.0%	30,886	70.6%
No Transport (Dry Run)	10,439	26.4%	11,006	27.0%	12,888	29.4%
Average Code 3 Response Time	6.91 minutes		6.11 minutes		6.85 minutes	
Code 3 Responses Not Meeting Ambulance Staffing Standard ¹	1,677	4.2%	208	0.6%	162	0.4%

¹ Ambulance staffing standard is a two paramedic staffed ambulance dispatched to all emergency medical requests, or a minimum of a two EMT-I staffed ambulance on multiple ambulance responses or if requested by a public safety dispatch center.

B. Base Hospital and Paramedic Service Programs

Base Hospital Services: In February 1993, Los Medanos Community Hospital gave notice to terminate its base hospital contract with the County for base hospital Zone D. On March 19, 1993, Mt. Diablo Medical Center assumed base hospital responsibilities for ambulances assigned to east County. Mt. Diablo Medical Center and John Muir Medical Center now provide **medical control** services for ambulances county-wide.

Total base hospital contacts for consultation by prehospital personnel in 1993 totaled 14,920. This was a 19% decrease in contacts over contacts in 1992. This decrease reflects changes in required call-in criteria which has allowed paramedics to utilize standing orders on select stable patients. Thirteen field care audits were offered as continuing education opportunities for paramedics and base hospital MICN's throughout the year.

Treatment Protocols: **ALS Field Treatment Guidelines** are used by paramedics, MICNs, and base hospital physicians to provide care to patients in the pre-hospital setting. These guidelines are reviewed and endorsed by the **Medical Advisory Committee** based on current research and medical need in the county and are adopted by the **EMS Medical Director**. In 1993, ALS Field Treatment Guidelines were updated to reflect new changes in the American Heart Association ALS standards.

C. First Responder Services

Because there are many more fire stations than ambulance stations, the responding fire unit usually arrives at the scene of an emergency a few minutes ahead of the ambulance. For this reason, the individuals on the fire response unit are known as the **fire first responders**. These first responders are trained and equipped to provide medical aid to patients until the ambulance arrives. All fire fighters are trained in first aid and CPR and many are trained and certified as Emergency Medical Technician-I's. In situations involving patient problems such as obstructed airway, severe bleeding, or cardiac arrest, fire fighters arriving early on the scene may be able to initiate lifesaving measures and achieve some stabilization of the patient before an ambulance arrives. Fire first responders also provide rescue, extrication, and an extra pair of hands to care for patients with particularly complex medical problems.

Early Defibrillation Program: One of the major EMS program enhancements identified in the Measure H Service Plan was the establishment of a **first responder defibrillation program** in the fire services. Early defibrillation is the standard of care for patients in cardiac arrest. The successful resuscitation of patients in ventricular fibrillation is directly related to how quickly defibrillation is provided. As fire first responders are generally the first rescuers on scene, the EMS Agency developed and implemented a First Responder Defibrillation program in which all fire agencies in Contra Costa County participate to assure that this state-of-the-art cardiac care is provided patients countywide. Fire first responders use a "**semi-automatic**" **defibrillator** which, when applied to the patient's chest, automatically assesses the patient's heart rhythm and instructs the firefighter to shock the patient if he/she is in ventricular fibrillation. A defibrillator is available on each first response fire apparatus routinely used to respond to medical emergencies.

Approximately 4 hours of training is necessary to prepare a firefighter to use the defibrillator. Training was completed and the program was available to citizens countywide in March, 1992.

In 1993, a defibrillator was applied to 532 patients in cardiac arrest. Of those patients, 150 or 28% were assessed by the semi-automatic defibrillator to be in a shockable rhythm and were defibrillated. Thirty six of the 150 patients who received shocks were admitted to the hospital, for a 24% field save rate. Of those 36 patients who were shocked and admitted to the hospital, 16 or 11% of the patients receiving defibrillation were discharged from the hospital.

Paramedic First Responder Programs: Paramedic first responders provide a method for combining early advanced life support care with the generally shorter response times of first responder units. Two types of paramedic first responder service are provided in Contra Costa County.

- The EMS Agency approved the use of an **ALS Engine** in the **Moraga Fire District** in 1988, as a pilot program to provide back up ALS service to the Moraga paramedic ambulance. The ALS Engine is staffed with a minimum of one (1) paramedic and one (1) EMT-1. It is stocked with ALS equipment and supplies, and is dispatched simultaneously with an ALS transport unit. The pilot program was approved for permanent designation in 1992.
- The **EMS Agency, American Medical Response, and East Diablo Fire District** entered into a formal cooperative effort to provide a more timely, cost effective method of delivering ALS to the citizens of the Discovery Bay and Byron areas. This effort resulted in the creation of an **ALS First Responder Paramedic Unit** that was placed into service on May 18, 1992. The effectiveness of this unit during its first year of operation was evaluated based on several factors including response times, scene management and safety, dispatch zones, field documentation, communications abilities, quality assurance, training and single rescuer effectiveness. The implementation of this paramedic First Responder Unit has positively changed the manner in which ALS care is delivered to this low call volume area.

Both the Moraga Fire ALS Engine and the American Medical Response First Responder Paramedic Unit operate under base hospital medical control as well as EMS Agency policies and procedures (EMS Policy 33B).

Emergency Medical Guidelines for Law Enforcement Agencies: Emergency Medical Guidelines For Law Enforcement Agencies were developed and implemented in 1992 following approval by the County Police Chiefs' Association and the Emergency Medical Care Committee. These guidelines provide direction to law enforcement personnel when they are the first to arrive on the scene of a medical emergency. The guidelines address only the medical aspects of the officer's responsibility. As a result of the approval process for these guidelines, new lines of communications have opened up between the EMS community and many of the law enforcement agencies in the County.

D. Dispatch & CommunicationsD. Dispatch & Communications

MEDARS: Medical Emergency & Disaster Ambulance Radio System (MEDARS) is the County radio system used for communications between ambulances and hospitals, and between Sheriff's Dispatch and ambulances. Prior to March 1992, the system consisted of only two radio channels, MED 1-2, which provided one channel for communications between Sheriff's Dispatch and ambulances and only one channel for all paramedic and EMT units to use to contact hospitals in the County. Paramedic units use the radio to contact their base hospital to give a patient report and receive treatment orders. With the single channel available for all ambulance/hospital communications, this important communications capability was not always readily available when needed.

In 1992, two additional channels, were added to the system bringing the EMS communications system up to the current 4 radio channels, with three of the channels used exclusively for ambulance/hospital communications, and one channel, Med 11, used exclusively for communications between Sheriff's Dispatch and ambulances. These four medical radio channels are now identified as Med 11-14. The two new channels, Med 13-14 are used in the central and eastern parts of the County. They are not available in the western part of the County, due to the possibility of interference with another Bay Area agency assigned to the same frequencies. The two new channels were designated for paramedic use only, to avoid overcrowding and possible communication delays. MED 12 continues to be used by paramedics in the western part of the County, and by EMT units throughout the County.

Message Transmission Network: The **Message Transmission Network (MTN)** is a computer link being designed to interconnect the county's 4 fire/medical dispatch centers, Sheriff's dispatch, and the ambulance dispatch center at American Medical Response. The system is intended to decrease dispatch time, to reduce dispatch errors, to enhance the ambulance monitoring capability of Sheriff's dispatch, and to provide system response data. The MTN makes use of the All County Criminal Justice Information Network (ACCJIN), which provides an existing linkage among 9-1-1 answering points using similar protocols (TCP/IP) to those used on the Internet. The system design was completed in 1993. Actual implementation of the system for transmitting EMS dispatch data required software modifications at each of the linked dispatch centers so that messages could be sent and accepted according to the design specification. Contracts have been initiated with the appropriate vendors at each dispatch centers and actual implementation of the system between CCC Fire dispatch and American Medical Response ambulance dispatch has been completed.

Priority Dispatching: Emergency Medical Dispatch (EMD) is a process of screening calls to provide the appropriate EMS first-responder/ambulance response, and of providing simple emergency medical instructions to the caller to be initiated prior to the arrival of EMS personnel. Contra Costa County Fire Dispatch has been providing limited call screening and pre-arrival instructions for several years. In 1993, commercial medical dispatch programs were evaluated and Medical Priority's ProQA Dispatch System, the only available computerized medical dispatch system, was selected to be piloted in the San Ramon Valley Fire Protection District Dispatch Center.

Fire Radios: Sixteen channel mobile radios, programmed with existing **fire service radio channels**, have been installed in all paramedic units, to facilitate communication among paramedics, fire dispatch centers, and fire first responders.

E. Trauma SystemE. Trauma System

In 1986, the Board of Supervisors approved a comprehensive **Trauma System Plan** for the County. That same year the County designated John Muir Medical Center as a Level II Trauma Center, and on June 30, 1986 trauma triage and transport protocols went into effect directing ambulance personnel to transport critical trauma patients directly to the John Muir Trauma Center. In 1993, 1,095 trauma patients were triaged from the field to John Muir Trauma Center. The triage protocols used by ambulance and base personnel identify mechanisms of injury, anatomic factors and a trauma scoring system to assist in the identification of these critical trauma patients. Patients who are in traumatic full arrest or have unmanageable airways (total of 76 in 1993) are triaged to the closest basic emergency department. Procedures are in place to transfer critically injured trauma patients to John Muir who arrive at non-trauma center hospitals through self-transport or under triage from the field. During the past 7.5 years of operation, a total of 22,483 patients have been triaged through the County trauma system. These include 8,542 patients transported to John Muir, 500 patients transported to other trauma centers (primarily Children's Hospital, Oakland) and 13,365 patients who were transported to non-trauma center hospitals, refused transport or expired in the field. If trauma center resources are temporarily overwhelmed, the trauma center staff may consider placing the trauma center on temporary "Trauma Center Bypass". In 1993, the John Muir Trauma Center bypass rate was 3% and was most often due to the simultaneous arrival of multiple trauma patients. During episodes of trauma bypass patients may be triaged to out-of-county trauma centers or to non-trauma centers within the County.

Trauma Prevention: The EMS Agency has continued to support injury prevention activities in 1993, by participating in the Childhood Injury Prevention Coalition and its subcommittees. The EMS Agency has been represented on the Health Services Department's Committee for Violence Prevention and has received a two part Violence Prevention Training developed by the Committee. EMS was awarded extensions of two EMSA injury prevention grants. One for motor vehicle data collection and integration and the other for firearm surveillance. The EMS Agency has continued its participation in the County's Childhood Death Review Team and the County sponsored injury prevention activities such as Bicycle Safety Days.

F. Helicopter TransportF. Helicopter Transport

The **Operational Procedures for Patient Transport by Helicopter** were originally developed during trauma system planning in 1985/86. While available for transport of medical patients, the majority of helicopter transports have been of trauma patients from distant areas of the County to John Muir. The two hospitals within the County with FAA approved helipads are John Muir Medical Center in Walnut Creek and Brookside Hospital in San Pablo. The helipad at Brookside Hospital is often used as a ambulance/helicopter rendezvous point for west county cases where helicopter transport is indicated, but no safe landing site can be identified. The number of transports has steadily increased over the years as has the number of trauma patients. The County standard of care for air transport of emergency patients is by "**air ambulance**" which is staffed with **two ALS level care providers**. **Rescue aircraft** are also requested for their special resources. As an example, a U.S. Coast Guard helicopter has been used for its hoist capability. Development of a formal process for access of military mutual aid is being investigated. **Helicopter Operations**

Committee has been established by the EMS Agency as a forum for exchange of information among helicopter providers and other interested individuals.

G. Hospital Emergency Services

Transfer Review Process: Contra Costa County **Patient Transfer Guidelines** were approved by the County Board of Supervisors on February 2, 1988. These guidelines established the procedures necessary for the transfer of patients between acute care facilities. A process for review of interfacility transfers was identified in this document including the formation of the **Transfer Review Panel**, a confidential multidisciplinary committee to oversee the transfer review process. The panel members represent facilities and organizations from throughout the County including major medical specialties. The panel's purpose is to review and make recommendations on patient transfer investigations as outlined in the County Transfer Guidelines. In 1993, a total of 1069 transfers were reported to and reviewed by the EMS staff. This staff evaluation resulted in indepth review of 6 cases by the EMS Agency staff and the Transfer Review Panel.

Emergency Department Diversion of Ambulances: **Diversion of ambulances** by the emergency departments of acute care receiving facilities in the County is permitted by EMS Policy #36, initially developed and implemented in August, 1985. Under the ambulance diversion policy, hospitals whose emergency departments are temporarily overloaded, may direct certain ambulance patients to other nearby hospitals. The purpose of this policy is to assure that patients are transported to a hospital which is able to provide immediate emergency treatment. The documentation pertaining to all reported incidents of ED ambulance diversion is reviewed by EMS staff. During 1993, there were 8 facilities which utilized diversion a total of 111 times. Overall, the trend for incidents of diversion has decreased over the past three years. There were no reports of problems in patient care resulting from these diversion incidents.

H. Disaster/Multicasualty Planning

Disaster Planning Grant: Since 1990, the EMS Agency has received a series of disaster planning grants through the State EMS Authority in connection with the designation of the Contra Costa County Health Officer as the Regional Disaster Medical/Health Coordinator for the northern California coastal area (OES Region II). These grants have enabled the EMS Agency to enhance the County's EMS disaster preparedness by improving coordination among cities, hospitals, the county EMS agencies and the State EMS Authority in the event of an earthquake or other major disaster. Initial efforts were toward development of procedures for the rapid assessment of hospital operating status and capacity, and for the communication of that information from hospitals to the County. In 1993, the emphasis in disaster planning under this grant was on development of the County medical operations response. Objectives and check lists were refined for key positions in the County Medical Operations Center.

Multicasualty Plan: The EMS Agency recognized the need for a coordinated response to multicasualty events by police, fire and ambulance personnel following the Yuba City/Martinez bus accident in 1976. The **Multicasualty Advisory Committee (MCAC)** multidisciplinary committee consisting of representatives of police, fire, EMS and ambulance providers was appointed in 1978 to develop an integrated response plan. The **Multicasualty Incident (MCI) Plan** concept was first

endorsed by the County Board of Supervisors in 1980 and in June 1982, the first Multicasualty Incident Plan was issued. The Plan establishes a common organization and management structure for the coordination of emergency response to a multicasualty incident. It establishes an efficient and effective emergency medical response to the injured and establishes methods of triage and transportation that will provide for the survival of the greatest number of casualties. The Plan may be implemented whenever the number of *injured* persons may exceed the medical capabilities of the jurisdictional resources. It is implemented by the Incident Commander of any incident whether it be a fire officer, law enforcement officer or ambulance crew member. The plan has been revised two times; in 1987 following the Sun Valley Mall plane crash and again in 1992 at which time hazardous materials response and helicopter response components were added.

In 1993 the Multicasualty Incident Plan was implemented four times; the first three of which involved a total of 16 patients. The most notable activation of the Plan was in response to the hazardous materials incident which occurred at General Chemical in Richmond. This incident involved over 22,000 individuals who were seen at various facilities over a 2 week period. The most immediate influx of patients were self transported to Kaiser Hospital in Richmond, Brookside Hospital, the County Richmond Health Center, the Martin Luther King Health Center and Doctor's Hospital. To help relieve the impact on local emergency departments, an off-site clinic was cooperatively established by the impacted facilities. Kaiser Hospital in Richmond assumed the lead role in the organization of this clinic established at the YWCA in Richmond.

The Multicasualty Advisory Committee has continued to meet on an as-needed basis to review multicasualty response incidents and to provide periodic updates to the Multicasualty Incident Plan.

Medical Advisory Alert: The Medical Advisory Alert is a component of the MCI Plan developed in 1987, is an advisory "warning" indicating that an event has occurred or a condition exists which *may* tax the medical resources of the affected area and is based upon information received from on-scene personnel or via a public safety agency of jurisdiction. It is implemented by a fire or law enforcement agency, the on-duty ambulance field supervisor or the senior ambulance person on the scene or a base hospital. Additionally it can be initiated by the Health Officer, Sheriff's Dispatch or EMS staff.

Expanded Medical Emergency: The Operational Procedures for Response to an Expanded Medical Emergency were developed for responses to those incidents requiring higher levels of response than is required day to day, but not requiring the full response of support services initiated with the Multicasualty Plan. Its focus is to provide an organizational structure to incidents that have more than one transport unit responding to them. It is designed to avoid overloading one facility with patients and to eliminate multiple calls to the base hospital(s) regarding the same incident. Developed and initiated in 1992, it has been used successfully numerous times throughout the County.

HSD Emergency Management Team: The EMS Agency provides staffing and planning for the Health Services Emergency Management Team. This group, which consists of Health Services Department personnel designated to respond to the County EOC or Medical/Health Operations Center in a disaster, meets monthly for planning and exercises.

Multi-Casualty Supply Caches: In 1991 the EMS Agency purchased emergency medical

supplies to be available for use countywide in a multicasualty or disaster situation. These supplies were organized into **multi-casualty supply caches** and were placed in fire stations throughout the County. The fire agencies agreed to store and maintain the caches in good condition, as well as to transport caches, when possible, to an incident, when requested, within thirty minutes of that request. In 1992, five additional caches were purchased and placed in fire stations, for a total of twenty five caches. Cache supplies include bandaging equipment, splinting supplies, oxygen administration supplies, blood pressure equipment, etc.

EMS HAZMAT Response Preparedness: Contra Costa and Solano Counties participated in a Joint EMS Hazardous Materials (Hazmat) Response Program which was funded over five years by the IT Corporation under consent decree from 1987 through 1992. As the result of this program, specialized training programs and treatment protocols for ambulance personnel and for hospitals in managing patients exposed to hazardous materials were developed.

The EMS Agency has continued to interface with industry by participating as guest member on C.A.E.R. (Community Awareness and Emergency Response) and P.M.A.O. (Petro-Chemical Mutual Aid) thereby encouraging emergency medical response planning by integrating the chemical facility's emergency response plans with those of the local community.

I. Certification ProgramsI. Certification Programs

The EMS Medical Director **certifies EMT-Is, accredits paramedics, and authorizes Mobile Intensive Care Nurses (MICN's)** to practice in Contra Costa County. These processes are carried out by the EMS Agency staff.

Paramedics: In June, 1993, the State Legislature passed legislation which eliminated the ability for local EMS Medical Directors to certify paramedics. Emergency legislation gave the State EMS Authority (EMSA) responsibility for certification of paramedics. Once certified by the State, paramedics must then become **accredited** to work by the local EMS Medical Director in his/her county of employment. The **local accreditation** process consists mainly of an EMS system orientation and a field evaluation by a paramedic preceptor. Paramedics are required to recertify/reaccredit every two years. Recertification/reaccreditation requirements include participation in continuing education activities, and successful completion of a written exam every four years.

In 1993, 121 paramedics were either accredited or re-accredited by the Contra Costa County EMS Agency to practice as paramedics within the County.

EMT-I's: EMT-I's are certified by the local EMS Medical Director of the county in which he/she was trained. Once an EMT-I is certified by any one of the local EMS Agencies in the State, he/she may function as an EMT-I State-wide.

Currently, EMT-I's are required to complete a refresher course every two years, prior to recertification. The EMSA is in the process of evaluating alternatives to the refresher course such as continuing education requirements, similar to those required of paramedics. In 1993, 387 EMT-I's were either certified or recertified by the Contra Costa County EMS Agency.

MICN's: MICN authorization requirements are established by the local EMS Agency as an expanded role for Registered Nurses. Although there are no State regulations setting specific standards for MICN's, county EMS Agencies authorize MICN's to perform the expanded MICN role in base hospitals within the county. In 1993, 58 RN's were either authorized or re-authorized by the Contra Costa County EMS Agency to practice in the expanded MICN role within Contra Costa County.

Certification Review: Certification review, as defined in State regulations, is a process reserved for the formal investigation of cases where very serious lapses in operational or medical protocol not thought to be amenable to remediation, or cases where there has been a significant deviation from State regulations or county policy standards. Potential problem cases are identified by the provider agency, the base hospital or the EMS Agency. EMS Policy 50 "Certification Review Process", which describes the procedure to be used if certification review becomes necessary, was amended in 1992 by adding base hospital reporting requirements and procedures. In 1993, certification review was undertaken by the EMS Agency in 4 cases with action taken against the involved individual's certification in 3 of the cases.

J. Training Programs

Local EMS Agencies are required to review and approve training programs for prehospital personnel as meeting all requirements established by State regulations.

Paramedic Training Programs: Los Medanos Community College in Pittsburg provides a paramedic training program. The Los Medanos paramedic program has been approved by the EMS Agency as meeting State standards. Med-Help, a private training facility in Concord, discontinued its paramedic training program in late 1993.

- **Los Medanos Community College** began its third paramedic course with approximately 30 students in the fall of 1993.

EMT-I Training Programs: Los Medanos Community College and Mt. Diablo Adult Education currently offer EMT-I training in Contra Costa County. Med-Help, a private training facility in Concord, discontinued its EMT-I training program in late 1993. The EMT-I courses offered by both training institutions have been approved by the EMS Agency.

- **Los Medanos Community College** offers an EMT training program each fall at their Pittsburg campus. In addition, they offer training through Contra Costa College in San Pablo.
- **Mt. Diablo Adult Education** offers EMT training programs at various times throughout the year at their facility in Concord.

MICN Training Programs: Several area training programs have found it necessary to temporarily or permanently discontinue their MICN classes. Los Medanos Community College, which has provided an MICN program for many years, discontinued its MICN training program in 1992 due to budget constraints and relatively low attendance. The only MICN training programs in

the area are at Stanford University and UC Davis. Lack of MICN classes makes it much more difficult for interested nurses to obtain this required initial training although there does not appear to be a shortage of MICNs at this time. (Note: Mt. Diablo Medical Center is in the final preparation stages of an MICN training course planned for summer, 1994. This course will be offered cooperatively with John Muir Medical Center.

K. Public Information Education ProgramsK. Public Information Education Programs

The **Public Information and Education (PIE)** Subcommittee of the Emergency Medical Care Committee is charged with providing public information and education concerning Emergency Medical Services. Activities included EMS access, recognition of life threatening situations, prevention of injuries, self-help techniques and first-aid skills that the public can utilize in emergency situations (CPR specifically). Early access of 9-1-1, as the first step in the "**Chain of Survival**", was a message consistently repeated in most forms of P.I.E. outreach activities during the year. PIE activities for 1993 included the following:

- Active distribution of the EMS Agency's **9-1-1 Brochure**; over 38,000 brochures were distributed to schools, cities, industry, churches, hospitals and fire agencies. The **9-1-1 Brochure** includes information about CPR training and the importance of early access of 9-1-1 in emergency situations.
- Continued provision of local CPR class information to the San Francisco based **1-800-GIVE-CPR**, a resource which makes local CPR class information available to callers. The 1-800-GIVE CPR number was advertised in the EMS 9-1-1 Brochure, in local public telephone books and in local Bay Area Rapid Transit (BART) stations.

PIE membership includes representatives of the EMCC, EMS, fire and Ambulance provider agencies, and encourages participation from any interested individuals. The PIE Subcommittee meets quarterly or more frequently as-needed.

L. Other ProgramsL. Other Programs

DNR Program: The Do-Not-Resuscitate (**DNR**) program for patients with terminal medical problems was implemented on January 1, 1993. This program evolved in response to concern from community groups, patient advocates, and medical personnel over the patient's right to self-determination. Historically, patients have received treatment to the fullest extent, regardless of their wishes, and discussions regarding the limits of resuscitation were reserved for medical personnel at the receiving hospital. EMS jurisdictions throughout the State have established programs which now allow the patient to forego resuscitation, even if the 9-1-1 system is accessed.

The Do-Not-Resuscitate program in Contra Costa County allows patients, in conjunction with their physician, to refuse resuscitative measures in the prehospital setting. The DNR form is physician initiated and provides prehospital personnel with a physician order to not resuscitate the patient. Comfort measures and care other than resuscitative measures are still provided by first responders and ambulance personnel. The EMS Agency provided over 6,500 of its own DNR forms to hospitals, nursing homes, hospices, home health agencies, and private physicians throughout the

County.

In March 1993, State EMSA revised its Prehospital DNR Guidelines and issued a standardized DNR form developed in conjunction with the California Medical Association. The EMS Agency revised its DNR policy to acknowledge the new State DNR form. This form allows the patient to have his/her wishes to forego resuscitation followed anywhere in the State. The County DNR form (which is no longer distributed) continues to be recognized as a valid DNR form by emergency personnel.

EMS Newsletter: The "**Emergency Medical Services Newsletter**" is in its fourth year of publication. The newsletter is printed bimonthly and is used to keep EMS system participants informed about new policies and procedures, upcoming continuing education activities and other EMS related projects and information. Distribution includes all ambulance personnel, base and receiving hospital personnel, fire and police public safety agencies, training institutions, and other interested parties.

V. Statistical ReportsV. Statistical Reports

A. Ambulance Dispatch Reports

**Contra Costa County Health Services Department
Emergency Medical Services Agency**

AMBULANCE DISPATCH REPORT

**Number of Responses, Response Code, and Response Level by Ambulance Provider
American Medical Response West, San Ramon Valley Fire District, Moraga Fire District**

Year 1993

Response Code and Level	All Providers		American Medical Response West		San Ramon Valley Fire District		Moraga Fire District	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total responses	43,774	100.0%	40,650	100.0%	2,561	100.0%	563	100.0%
Code 3 responses	36,484	83.3%	33,746	83.0%	2,175	84.9%	563	100.0%
Code 2 responses	7,290	16.7%	6,904	17.0%	386	15.1%	0	0.0%
Total code 3 responses	36,484	100.0%	33,746	100.0%	2,175	100.0%	563	100.0%
ALS response	35,899	98.4%	33,161	98.3%	2,175	100.0%	563	100.0%
Exempt BLS response	423	1.2%	423	1.2%	0	0.0%	0	0.0%
Non-Exempt BLS response	162	0.4%	162	0.5%	0	0.0%	0	0.0%
Code 2 responses	7,290	100.0%	6,904	100.0%	386	100.0%	0	----
ALS response	2,601	35.7%	2,215	32.1%	386	100.0%	0	----
BLS response	4,689	64.3%	4,689	67.9%	0	0.0%	0	----

**Contra Costa County Health Services Department
Emergency Medical Services Agency**

AMBULANCE DISPATCH REPORT

**Patient Transport by Ambulance Provider
American Medical Response West, San Ramon Valley Fire District, Moraga Fire District**

Year 1993

Response Outcome	All Providers		American Medical Response West		San Ramon Valley Fire District		Moraga Fire District	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total responses	43,774	100.0%	40,650	100.0%	2,561	100.0%	563	100.0%
Transported	30,886	70.6%	29,003	71.4%	1,560	60.9%	323	57.4%
Cancelled	12,888	29.4%	11,647	28.7%	1,001	39.1%	240	42.6%
Total patient transports	30,886	100.0%	29,003	100.0%	1,560	100.0%	323	100.0%
Transported code 3	3,224	10.4%	3,040	10.5%	184	11.8%	0	0.0%
Transported code 2	27,233	88.2%	25,887	89.3%	1,346	86.3%	0	0.0%
Transport code not reported	429	1.4%	76	0.3%	30	1.9%	323	100.0%
Total Cancelled	12,888	100.0%	11,647	100.0%	1,001	100.0%	240	100.0%
Enroute	3,897	30.2%	3,474	29.8%	389	38.9%	34	14.2%
On Scene	8,991	69.8%	8,173	70.2%	612	61.1%	206	85.8%

Total	43,774	100.0%	7,290	16.7%	36,484	83.4%	6.85	1.6%
Richmond	8,533	19.5%	1,144	13.4%	7,389	86.6%	6.95	3.0%
San Pablo	2,194	5.0%	466	21.2%	1,728	78.8%	6.26	1.7%
El Cerrito	1,183	2.7%	157	13.3%	1,026	86.7%	6.40	1.4%
El Sobrante	494	1.1%	58	11.7%	436	88.3%	7.32	2.1%
North Richmond	436	1.0%	40	9.2%	396	90.8%	6.58	2.0%
Kensington	175	0.4%	19	10.9%	156	89.1%	10.06	0.6%
Pinole	924	2.1%	98	10.6%	826	89.4%	6.71	2.2%
Hercules	529	1.2%	89	16.8%	440	83.2%	8.53	1.6%
Rodeo	434	1.0%	74	17.1%	360	83.0%	8.92	2.8%
Crockett	221	0.5%	31	14.0%	190	86.0%	11.77	2.6%
Concord	6,527	14.9%	1,411	21.6%	5,116	78.4%	6.43	0.8%
Martinez	1,695	3.9%	309	18.2%	1,386	81.8%	7.32	7.5%
Pleasant Hill	1,536	3.5%	283	18.4%	1,253	81.6%	6.79	0.3%
Pacheco	320	0.7%	49	15.3%	271	84.7%	7.58	1.5%
Clayton	237	0.5%	49	20.7%	188	79.3%	12.14	0.0%
Clyde	19	0.0%	1	5.3%	18	94.7%	8.71	0.0%
Walnut Creek	3,664	8.4%	523	14.3%	3,141	85.7%	6.74	0.4%
Lafayette	761	1.7%	93	12.2%	668	87.8%	7.06	0.5%
Orinda	548	1.3%	121	22.1%	427	77.9%	9.58	0.5%
Moraga	584	1.3%	42	7.2%	542	92.8%	4.42	0.2%
Alamo	269	0.6%	73	27.1%	196	72.9%	6.75	0.0%
Danville	1,130	2.6%	214	18.9%	916	81.1%	5.77	0.1%
San Ramon	1,178	2.7%	170	14.4%	1,008	85.6%	6.31	0.1%
Antioch	3,353	7.7%	581	17.3%	2,772	82.7%	6.19	1.3%
Pittsburg	3,471	7.9%	631	18.2%	2,840	81.8%	5.88	1.1%
Bay Point	1,299	3.0%	216	16.6%	1,083	83.4%	8.61	0.5%
Oakley	696	1.6%	98	14.1%	598	85.9%	7.54	0.8%
Bethel Island	226	0.5%	42	18.6%	184	81.4%	11.94	1.1%
Knightsen	12	0.0%	2	16.7%	10	83.3%	7.33	0.0%
Brentwood	691	1.6%	102	14.8%	589	85.2%	7.37	0.9%
Discovery Bay	182	0.4%	46	25.3%	136	74.7%	14.58	0.7%

**Contra Costa County Health Services Department
Emergency Medical Services Agency
AMBULANCE DISPATCH REPORTS**

Number of Transports by Hospital Destination, Transport Code, and Major Trauma Victim Status.
American Medical Response West, San Ramon Valley Fire District, Moraga Fire District
Year 1993

Hospital	All Transports		Major/Minor Trauma ¹		Non - Trauma		Code 3 Transports		Code 2 Transports		Transport Code Unknown	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Transports	30,886	100.0%	1,929	100.0%	28,957	100.0%	3,224	100.0%	27,233	100.0%	429	100.0%
Brookside	5,299	17.2%	306	15.9%	4,993	17.2%	473	14.7%	4,808	17.7%	18	4.2%
Delta	2,408	7.8%	149	7.7%	2,259	7.8%	303	9.4%	2,102	7.7%	3	0.7%
Doctors	1,530	5.0%	65	3.4%	1,465	5.1%	170	5.3%	1,359	5.0%	1	0.2%
John Muir	3,805	12.3%	657	34.1%	3,148	10.9%	788	24.4%	2,851	10.5%	166	38.7%
Kaiser - Martinez	1,653	5.4%	85	4.4%	1,568	5.4%	69	2.1%	1,580	5.8%	4	0.9%
Kaiser - Richmond	1,355	4.4%	0	0.0%	1,355	4.7%	99	3.1%	1,254	4.6%	2	0.5%
Kaiser - Walnut Creek	2,076	6.7%	85	4.4%	1,991	6.9%	175	5.4%	1,816	6.7%	85	19.8%
Los Medanos	2,799	9.1%	129	6.7%	2,670	9.2%	296	9.2%	2,484	9.1%	19	4.4%
Merrithew	4,166	13.5%	36	1.9%	4,130	14.3%	70	2.2%	4,086	15.0%	10	2.3%
Merrithew - RCC	137	0.4%	0	0.0%	137	0.5%	0	0.0%	137	0.5%	0	0.0%
Mount Diablo	3,242	10.5%	120	6.2%	3,122	10.8%	395	12.3%	2,834	10.4%	13	3.0%
San Ramon	866	2.8%	48	2.5%	818	2.8%	118	3.7%	731	2.7%	17	4.0%
Alta Bates	508	1.6%	14	0.7%	494	1.7%	30	0.9%	422	1.6%	56	13.1%
Children's	160	0.5%	36	1.9%	124	0.4%	48	1.5%	101	0.4%	11	2.6%
Eden	7	0.0%	2	0.1%	5	0.0%	2	0.1%	5	0.0%	0	0.0%
Highland	28	0.1%	10	0.5%	18	0.1%	12	0.4%	15	0.1%	1	0.2%
Kaiser - Vallejo	127	0.4%	11	0.6%	116	0.4%	4	0.1%	123	0.5%	0	0.0%
Kaiser - Oakland	131	0.4%	0	0.0%	131	0.5%	20	0.6%	109	0.4%	2	0.5%
Summit	75	0.2%	0	0.0%	75	0.3%	4	0.1%	56	0.2%	15	3.5%
Other/Unknown	514	1.7%	176	9.1%	338	1.2%	148	4.6%	360	1.3%	6	1.4%

¹ Includes all trauma calls which meet Contra Costa EMS base hospital call-in criteria

Total Helicopter Transports to Resources Within the County 474

Origin of Transports - Within the County

West	217
East	135
South	21
Central	10

Origin of Transports - Outside of County

Solano County	38
Alameda County	12

Origin Unknown 41

Total Transports by Provider

CALSTAR	378
CHP	27
Stanford Life Flight	11
Medi-Flight	8
REACH	5
East Bay Regional Parks	3
UC Davis Life Flight	1

**Contra Costa County Health Services
Emergency Medical Services Agency**

Year 1993

Patient Transport by Month and Helicopter Classification

Month	Total Transports	Air Ambulance/ Rescue Aircraft
January	14	14/0
February	20	20/0
March	33	30/3
April	56	53/3
May	43	37/6
June	56	52/4
July	52	47/5
August	34	30/4
September	55	51/4
October	39	38/1
November	33	31/2
December	32	30/2

Helicopter Transport by Patient Severity

Month	Critical Trauma Patient¹		
	Yes	No	Unknown
January	6	4	4
February	6	5	9
March	7	10	16
April	18	20	18
May	17	15	2
June	18	21	17
July	21	16	5
August	10	16	8
September	21	18	16
October	16	16	7

November	8	16	6 ²
December	16	7	9

¹ Essentially all 1993 helicopter transports were of trauma patients; only 1 non-trauma patient was transported by helicopter.

² Includes patients who were in cardiac arrest prior to transport.

C. Trauma System ReportC. Trauma System Report

**Contra Costa County Health Services
Emergency Medical Services Agency**

TRAUMA SYSTEM REPORT

Year 1993

1993 TRAUMA SYSTEM OPERATIONS	TOTAL	RETROSPECTIVE CTP's
System patients meeting trauma criteria	3,682 ¹	534
Patients triaged as field CTP's to John Muir Trauma Center Includes patients transferred to JMMC from non-trauma centers	1, 095	482
Patients triaged as field CTP's to Children's Hospital	7 4	2
Patients triaged as field CTP's to other trauma centers	2 6	2
Patients triaged as field non-CTP's to non-trauma centers	2, 411	24
Patients in traumatic arrest/unmanageable airway to non-trauma centers	7 2	72
Field CTP's to non-trauma centers due to trauma center bypass	3	3

CTP/Field: Patient meeting criteria for automatic transport to a trauma center or triaged to a trauma center by base hospital or disrupted communications protocol.

CTP/Retrospective: Critical trauma patient based upon retrospective criteria (ISS over 15 or ISS 10-14 with at least three day hospitalization).

1 Does not capture all patients pronounced in the field

2 Total not available

Data Sources: Trauma Base Log, Sheriff-Coroner Report, Helicopter Provider Reports, Ambulance Agency Reports, John Muir Trauma Center Trauma Registry Reports, John Muir Trauma Center Bypass Records, Contra Costa Receiving Hospitals, Out-of-County Trauma Centers, Out-Of-County Receiving Hospitals.

D. Early Defibrillation Program Reports**2D. Early Defibrillation Program Reports**

**Contra Costa County Health Services
Emergency Medical Services Agency**

FIRST RESPONDER DEFIBRILLATION PROGRAM REPORT

Year 1993

Number of patients evaluated: 532

Number of patients shocked: 150

Number of patients shocked who were field saves (admitted to hospital): 36

Number of patients shocked who were saves (discharged from hospital): 16

28% of the total number of patients evaluated had a shockable rhythm.

24% of those patients with a shockable rhythm were admitted to the hospital.

11% of those patients with a shockable rhythm were discharged from the hospital.

**Contra Costa County Health Services
Emergency Medical Services Agency**

FIRST RESPONDER DEFIBRILLATION PROGRAM

Activity Report By Fire Agency

Year 1993

Fire Agency	Defibrillator	Patient	Patient	Patient Discharged
Bethel Island	10	1	0	0
Contra Costa	200	57	11	7
Crockett -Carquinez	4	1	0	0
Dougherty	21	8	1	1
East Diablo	9	4	2	2
El Cerrito	15	2	1	1
Kensington	6	3	0	0
Moraga	0	0	0	0
Oakley	11	2	1	0
Orinda	10	3	0	0
Pinole	13	5	2	0
Richmond	127	37	9	2
Riverview	65	13	4	1
Rodeo	22	2	0	0
San Ramon	29	12	5	2
Total	532	150	36	16

E. Patient Transfer Report**E. Patient Transfer Report**

**Contra Costa County Health Services
Emergency Medical Services Agency**

PATIENT TRANSFER REVIEW

Year 1993

Total Cases Reviewed: 1069

Indepth review of cases: 6

Facility "J": 1
 Facility "O": 1
 Facility "Y": 3*
 Facility "N": 1

Violations Cited: Procedural Substantive Non-violation No Merit
 P = 2 S = 2 N = 0 NM = 0

* two cases were closed due to issues being dealt with through other avenues

SENDING FACILITY	CASE TYPE	REASON CITED
"J"	Surg	P: No arrangements for direct admit
"O"	OB/Gyn	S: No exam, no arrangements
"Y"	Psych Psych Psych	Closed without TRP review Closed without TRP review P: No notice, arrangements
"N"	Surg	S: Unstable

F. Emergency Department Diversion Report**F. Emergency Department Diversion Report**

**Contra Costa County Health Services
Emergency Medical Services Agency**

EMERGENCY DEPARTMENT DIVERSION (BY-PASS)

Year 1993

HOSPITAL	NUMBER OF INCIDENTS	TOTAL TIME	PERCENT	AVERAGE
Brookside	39	59 hr 32 min	< 1%	1 hr 32 min
Delta Memorial	17	35 hr 18 min	< 1%	2 hr 5 min
Doctors', Pinole	1	0 hr 50 min	< 1%	0 hr 50 min
John Muir	1	0 hr 20 min	< 1%	0 hr 20 min
Kaiser, Martinez	0			
Kaiser, Richmond	3	7 hr 53 min	< 1%	2 hr 38 min
Kaiser, Walnut Creek	0			
Los Medanos	7	14 hr 50 min	< 1%	2 hr 7 min
Merrithew Memorial	40	95 hr 19 min	1.09%	2 hr 23 min
Mt Diablo	3	8 hr 34 min	< 1%	2 hr 51 min
San Ramon Regional	0			

G. Base Hospital Contact Report G. Base Hospital Contact Report

**Contra Costa County Health Services
Emergency Medical Services Agency**

BASE HOSPITAL CONTACT REPORT

John Muir, Mt. Diablo and Los Medanos Hospitals

Year 1993

CONTACTS	John Muir	Mt. Diablo	Los Medanos*
TOTAL BASE CONTACTS	8,848	5,237	835
ALS Care Provided	6,928	4,789	757
ALS Care Not Provided	1,920	448	78

Base Contacts - Cardiac Arrest

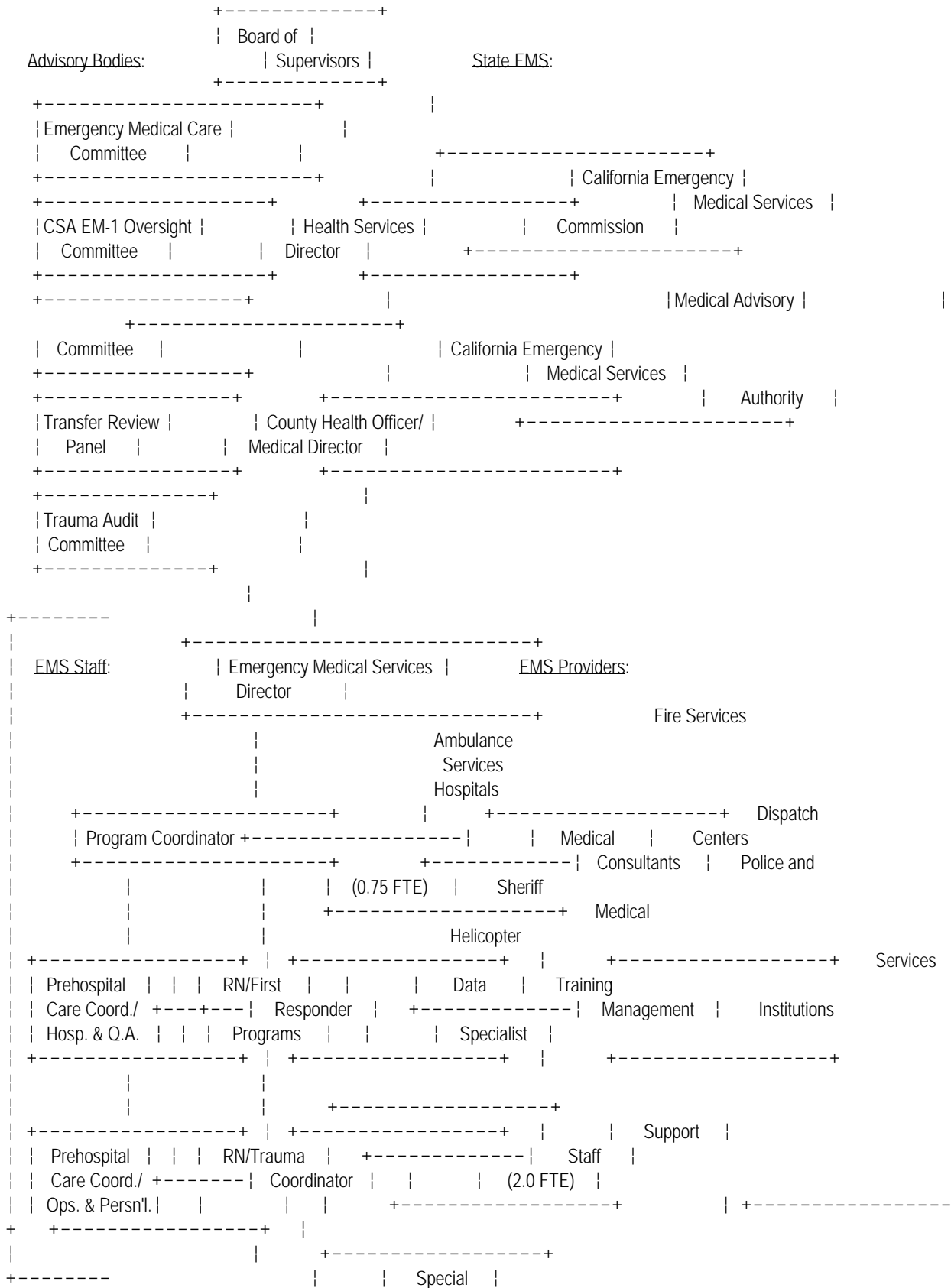
CARDIAC ARREST	John Muir	Mt. Diablo	Los Medanos*
TOTAL CARDIAC ARRESTS	752	444	36
Cardiac - Medical	522	364	32
Cardiac - Trauma	50	3	0
Cardiac - Pronounced at Scene	180	77	4

* Los Medanos Community Hospital terminated base hospital functions on March 18, 1993.

**VI. EMS Agency
Organizational Chart**

**CONTRA COSTA COUNTY HEALTH SERVICES DEPARTMENT
Emergency Medical Services Agency**

Organization Chart



+-----| Projects |

| |

EMS Functions:

+-----+

- Provide overall coordination of County EMS System.
- Regulate emergency ambulance services.
- Regulate County Trauma System.
- Establish prehospital treatment protocols.
- Approve and monitor paramedic programs.
- Approve and monitor first responder defibrillation programs.
- Provide medical disaster planning and coordinate medical disaster response.
- Review interfacility patient transfers.
- Review and approve training programs for prehospital personnel.
- Conduct certification program for prehospital personnel.
- Administer County Service Area EM-1 to provide enhancements to the EMS system.

VII. Glossary of EMS TermsVII. Glossary of EMS Terms

Advanced Cardiac Life Support (ACLS): An advanced level certification provided by the American Heart Association generally required for paramedics, emergency nurses and emergency physicians.

Advanced Life Support: Special services designed to provide definitive prehospital emergency medical care, including, but not limited to, cardiopulmonary resuscitation, cardiac monitoring, cardiac defibrillation, advanced airway management, intravenous therapy, administration of specified drugs and other medicinal preparations, and other specified techniques and procedures administered by paramedics under the direct supervision of a base hospital as part of a local EMS system at the scene of an emergency, during transport to an acute care hospital, during interfacility transfer, and while in the emergency department of an acute care hospital until responsibility is assumed by the emergency or other medical staff of that hospital.

Authorized Registered Nurse (ARN) or Mobile Intensive Care Nurse (MICN): A registered nurse who has been authorized by the medical director of the local EMS agency as qualified to issue instructions to prehospital emergency medical care personnel within an EMS system according to standardized procedures developed by the local EMS agency.

Base Hospital: One of a limited number of hospitals which, upon designation by the local EMS agency and upon the completion of a written contractual agreement with the local EMS agency, is responsible for directing the advanced life support (ALS) system and prehospital care system assigned to it by the local EMS agency.

Base Hospital Physician: A physician who is currently licensed in California, who is assigned to the emergency department of a base hospital, and who is knowledgeable in the medical protocols, radio procedure and general operating policies of the County EMS system, and a person from whom ambulance personnel may take medical direction by radio or other telephone.

Basic Life Support: Emergency first aid and cardiopulmonary resuscitation procedures which, as a minimum, include recognizing respiratory and cardiac arrest and starting the proper application of cardiopulmonary resuscitation (CPR) to maintain life without invasive techniques until the victim may be transported or until advanced life support is available.

Basic Trauma Life Support (BTLS): A trauma care course developed by the American College of Emergency Physicians. This course is required for paramedics in Contra Costa County.

Cardiac Arrest: A state when the heart stops beating or where it quivers (ventricular fibrillation) and does not pump blood to the rest of the body, which will result in death. Resuscitation, such as defibrillation, if provided soon enough may save the patient's life in some situations.

Cardiopulmonary Resuscitation (CPR): The procedure of performing artificial respiration and artificial circulation to a non-breathing, pulseless patient.

Casualty Collection Point (CCP): A site for the congregation, triage (sorting), preliminary treatment, and evacuation of casualties following a disaster.

Code 2: Used by EMS systems to refer to an immediate ambulance response to a potentially urgent but non-life threatening incident without the use of red lights and sirens and adhering to all requirements of the vehicle code (speed limits and rights-of-ways).

Code 3: Ambulance response with red lights and sirens to an emergency incident. When responding Code 3, the emergency unit may exceed the posted speed limit within certain constraints and may proceed through red lights without making a complete stop, although the ambulance driver is held responsible for assuring safety for his/her unit and other drivers while doing so.

Computer Aided Dispatch (CAD): A computer system consisting of associated hardware and software to facilitate call taking, unit selection, resource dispatch and deployment, event time stamping, as well as creation and real time maintenance of incident database.

County Service Area (CSA) EM-1: Special benefit assessment district established by the Board of Supervisors to fund EMS enhancements.

Defibrillator: A piece of equipment which can momentarily arrest all non-coordinated contractions of heart muscle fibers with the use of electric current in order that a spontaneous beat may resume. Hospitals and paramedics (ALS providers) use manually operated defibrillators which require judgement on the part of the rescuer. First responders use automatic or semi-automatic defibrillators which assess the patient's cardiac status and provide the shock (or instruct that the shock be provided) if necessary.

Dispatch Center: A coordinating center for the efficient management of all participating emergency resources within a designated area of responsibility. The center dispatches rescue personnel and equipment and coordinates these various resources to ensure maximum effectiveness.

Emergency: A condition or situation in which an individual has a need for immediate medical attention, or where the potential for such need is perceived by emergency medical personnel or a public safety agency.

Emergency Ambulance Unit: A vehicle specially constructed, equipped with appropriate medical equipment/supplies, and staffed with qualified personnel for transporting sick or injured patients.

Emergency Department: The area of a licensed general acute care hospital that customarily receives patients in need of emergency medical evaluation and or care.

Emergency Medical Care Committee (EMCC): A county committee consisting of membership appointed by the Health Services Director and charged with reviewing the following EMS services within the county: ambulance services; emergency medical care, including large scale CPR and first aid training; and first aid practices.

Emergency Medical Services Authority (EMSA): The State EMS organization which develops standards for local EMS systems and provides coordination and leadership.

Emergency Medical Services Commission: A State multidisciplinary committee established by State legislation to review and approve regulations, standards, and guidelines, as well as to advise the EMS authority on a variety of issues.

Emergency Medical Services Medical Director: A licensed physician appointed as the medical director of the local EMS Agency to provide medical control and to assure medical accountability through the planning, implementation and evaluation of the EMS system.

Emergency Medical Services System: A specially organized and coordinated arrangement which provides for the personnel, facilities, and equipment for the effective and coordinated delivery of medical care services under emergency conditions.

Emergency Medical Services System Plan: A plan for the delivery of emergency medical services consistent with state guidelines addressing the components listed in Health and Safety Code Section 1797.103.

Emergency Medical Technician-I (EMT-I): An individual trained in all facets of basic life support and certified by the EMS Agency in the county where training occurred. In the Contra Costa County EMS system, EMT-I staffed ambulances generally provide back-up to paramedic staffed ambulances, although they may be dispatched to respond to certain requests which have been determined to require only basic life support services.

Emergency Medical Technician-Paramedic, EMT-P or Paramedic: An individual whose scope of practice includes skills and procedures to provide advanced life support as part of an EMS system and who is certified by the State of California and accredited by the local EMS agency having met established criteria. In the Contra Costa County EMS system, paramedics are to be dispatched to all emergency medical requests unless it has been established by the fire/medical dispatch center that a basic life support ambulance is a sufficient level of response.

Emergency Operating Center (EOC): A facility designed and equipped for the use by city, county or other governmental agency leadership to manage the disaster response to the community.

Emergency Response Area (ERA): An ambulance zone designated by the county for issuing ambulance permits and identifying exclusive operating areas for emergency ambulance service agreements. Contra Costa County is divided into five emergency response areas.

First Responder: The first EMS rescuer to arrive on the scene of a medical emergency; generally a fire non-transport unit.

Health & Safety Code: The division of State legislation that includes Division 2.5 EMS Statutes.

Health Services Department: A department of county government responsible for health related issues. The Contra Costa County Health Services Department, which includes the

Emergency Medical Services Agency, has been designated by the local Board of Supervisors as the "Local EMS Agency", and the County Health Officer as the "EMS Medical Director".

Incident Command System (ICS): A command structure to provide a hierarchy of command during an emergency incident.

Local EMS Agency: The local agency, usually a county health department, or office having primary responsibility for administration of emergency medical services in a county or multi-county area.

Measure H: The Contra Costa County advisory ballot measure in the Fall of 1988, which, when it passed overwhelmingly in each city and in the unincorporated area of the County, advised a special assessment be collected to support EMS programs; specifically added paramedic ambulance units, EMS communications system enhancements, disaster supplies, and enhanced medical training and equipment for fire first-responders.

Measure H Oversight Committee: A committee established to make recommendations to the Health Services Director with regards to the planning and monitoring of the County Service Area CSA-EM1 including budget matters.

Medical Advisory Committee (MAC): A committee which was established by, and makes recommendations to, the EMS Director with regards to the medical components of the EMS system. Local medical treatment protocols and policies are generally recommended or approved by MAC. Membership consists of representatives of the base hospitals, receiving hospitals, paramedics, and EMS staff.

Medical Control: The medical management of the emergency medical services system. This is done prospectively, e.g., policies and procedures; on-line, e.g., base hospital direction; and retrospectively, e.g., continuing education, case review, quality improvement activities.

Multicasualty Incident (MCI): An emergency incident involving any number of injured persons which over-taxes the rescue and medical resources of the responsible agencies within an area of the County.

Mutual Aid: The furnishing of resources from one individual or agency to another, including but not limited to facilities, personnel, equipment and/or services, pursuant to an agreement between the individuals and/or agencies when requested during time of need.

Public Safety Agency: A functional division of a public agency which provides fire fighting, police, medical or other emergency services.

Public Safety Answering Point (PSAP): The location where 9-1-1 calls are answered and either appropriate resources are dispatched or the request is relayed to the responding agency.

Response Time: The actual elapsed time between receipt of a request for service and the arrival of the ambulance at the requested location.

Trauma Care System: A formally organized arrangement of health care resources, defined by the local EMS Agency, by which severely injured patients are triaged, transported

to and treated at designated trauma centers.

Trauma Center: A licensed general acute care hospital which has been designated as a Level I, II or III Trauma Center by the local EMS Agency. The trauma center provides staffing and equipment to immediately provide evaluation and intervention for severely injured patients. John Muir Medical Center is the designated Level II Trauma Center for Contra Costa County.

Trauma System Plan: A formal plan for the transport and care of critically injured patients. Trauma system plans must be submitted to and approved by the EMS Authority and must be updated annually. The Contra Costa County Trauma System Plan includes the utilization of one level II trauma center within the county.

Trauma Triage Criteria: The method used by ambulance personnel to determine whether an injured patient needs the specialized services of a trauma center. The method takes into consideration the mechanism of injury, obvious injuries and other information obtained in a brief patient exam.

Triage: A continuous process of sorting accident victims according to the severity of their injuries. Necessary when the number of victims exceeds the number of rescuers or resources available.

VIII. List of Documents Available From the EMS Agency

EMS System Plan, 1985

Trauma System Plan, 1986

Patient Transfer Guidelines, 1987

Paramedic Manual, 6/93

Multicasualty Incident (MCI) Plan, 1/92

County Service Area EM-I Proposal and Service Plan

Emergency Medical Guidelines for Law Enforcement Agencies, 1992

Request for Proposal for Trauma Center Designation, 1992

Request for Proposal for Emergency Ambulance Services, 1990

Multicasualty Cache Supplies and Locations

Expanded Medical Emergency Response Procedure

EMS Policies:

- # 1 Communicable Disease Exposure (revised 1/1/93)
- # 2 Ambulance-to-Hospital Radio Communications (revised 3/92)
- # 3 Patient Destination Transport Code Determination (revised 3/92)
- # 4
- # 5 Drug Errors - Paramedics (revised 1/1/93)
- # 6 Disrupted Communications (revised 1/1/94)
- # 7 County Paramedic Evaluator (revised 7/1/92)
- # 8 Hospice Agreements on Non-Emergency Ambulance Transport (rev. 1/1/94)
- # 9 Radio Channel Use For Field-To-Hospital Communications (revised 11/1/93)
- #10 BLS Ambulance Management Of Emergency Scenes (6/1/92)
- #11 EMT-1 Certification Process (revised 1/1/93)
- #12 Fee Structure For EMT-1, EMT-P, AND MICN Certification (revised 1/1/94)
- #13 Do Not Resuscitate (1/1/94)
- #14 Patient Refusal of Emergency Medical Care/Ambulance Transport (revised 3/92)
- #15 Endotracheal Intubation Certification (revised 1/1/93)
- #16 Paramedic Accreditation (revised 4/1/93)

- #17 Paramedic Team Splitting For Transport (revised 9/15/89)
- #18 Pulse Oximetry (7/13/92)
- #19 Guidelines for "Load & Go" Transport (revised 1/1/93)
- #20 Paramedic Student Preceptor Program (7/1/93)
- #21
- #22
- #23
- #24 MICN (Authorized Registered Nurse) (revised 3/1/92)
- #25
- #26 Controlled Substances - Initial Inventory Procurement, etc. (revised 3/87)
- #27 Elder Abuse Reporting (EMT-1 AND EMT-P) (revised 1/1/93)
- #28 Paramedic Base Hospital Communications on ALS Calls (revised 1/1/94)
- #29 Guidelines for the Utilization of EMT-1 & Paramedic Ambulances for Secondary Interfacility Transfers of Patients (revised 1/1/93)
- #30
- #31
- #32 Physician on Scene (1/1/94)
- #33 Paramedic First Responder Units (revised 9/1/92)
- #34 First-In Assistance on Code III Transports (5/1/85)
- #35 Determination of Death in the Prehospital Setting (revised 1/1/94)
- #36 Emergency Department Diversion (revised 3/91)
- Addendum - Emergency Department ByPass Notification
- #37
- #38
- #39
- #40 EMT/EMT-P Administration of Oral Glucose Solution (revised 7/91)
- #41 Physician Consultant Criteria For ALS Calls (1/1/94)
- #42 BLS Transport Following ALS/BLS Tiered Response (revised 5/92)
- #43
- #44
- #45
- #46 Critical Trauma Patients (revised 1/1/93)
- #47 Transfer of Critical Trauma Patients to Trauma Center (rev. 3/92)
- #48
- #49 Immediate Medical Control & Direction of EMT-P (revised 1/1/94)
- #50 EMS Personnel Certification Review Process Guidelines (revised 3/92)
- #51 Ambulance Response to Hazardous Material Spills (revised 3/92)
- #52 Child Abuse Reporting — EMT-I and Paramedic (revised 10/15/92)
- #53 1st Responder Defibrillation - Standards, Policies & Procedures (A thru H) (revised 1/1/93)

